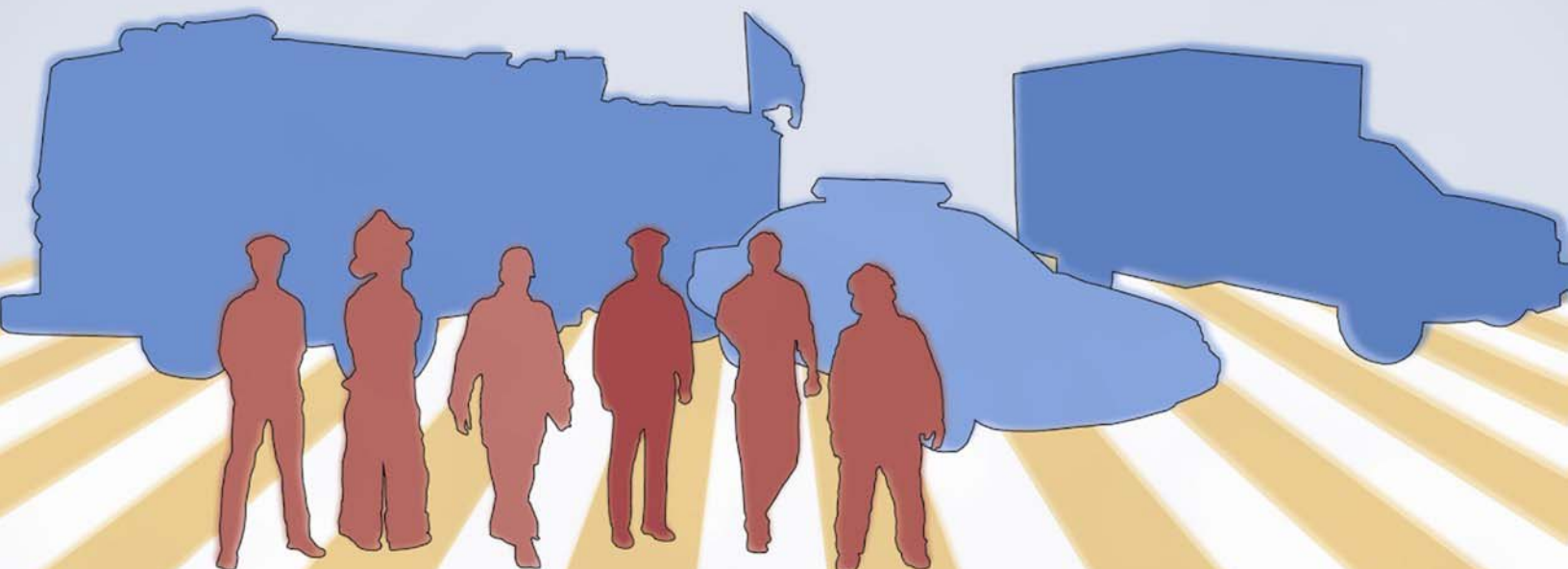# Commonwealth of Virginia
Fiscal Year 2006 Strategic Plan for Statewide Communications Interoperability
FY 2005-2015

SAFECOM

NIJ

Partnering to Save Lives

COMMONWEALTH of VIRGINIA

Office of the Governor

John W. Marshall
Secretary of Public Safety

Marilyn P. Harris
Deputy Secretary of Public Safety

September 26, 2005

Greetings:

I am very pleased to provide to you the Fiscal Year 2006 Commonwealth of Virginia Strategic Plan for Statewide Communications Interoperability. Throughout Fiscal Year 2005, Virginia made remarkable progress in the area of planning for the improvement of statewide communications interoperability. As a result, Virginia is currently being used as a best practices model by the Department of Homeland Security (DHS) and SAFECOM for statewide interoperability planning. This second version of the Statewide Plan shows our continued commitment to the public safety practitioner community of Virginia and marks the next step towards achieving the 2015 vision of improved communications interoperability on a local, regional, state and federal level.

The State Interoperability Executive Committee (SIEC), State Interoperability Advisory Group and my office, the Commonwealth Interoperability Coordinator's Office (CICO), collaborated to refine and enhance the FY 2005 Statewide Plan to create this Fiscal Year 2006 Commonwealth of Virginia Strategic Plan in response to § 9.1-1100 of the *Code of Virginia* which requires the annual update and implementation of the Plan. Updating the plan gives us the opportunity to take a second look at our strategic goals and initiatives, ensuring the needs of the practitioners.

In FY 2005, the SIEC and Advisory Group ably represented the local public safety community, drove the planning process, and assisted in the implementation of several key initiatives under the leadership of Chief Charles Werner, Chair and Joe Ribeiro, Vice Chair. In FY 2006, we hope to continue our work with state agencies to ensure the initiatives contained in the Statewide Plan are implemented fully and effectively under new leadership, Eddie Reyes as Chair and Bill Bullock as Vice Chair. We continue our commitment to coordinate across disciplines, localities and between local and state agencies and organizations to increase our awareness of current projects and challenges in Virginia. The interoperability challenge facing Virginia is ten percent technology and ninety percent coordination.

As we move towards the July 1, 2015 deadline for state agencies and localities to achieve consistency with the Statewide Plan, we must remain vigilant and continue to improve the ability of our public safety community to communicate between different disciplines and across jurisdictional boundaries. With help from all practitioners statewide, we will achieve our 2015 vision and continue to be a model and positive example of the impact of effective statewide interoperability.

Sincerely,

Chris Essid
Commonwealth Interoperability Coordinator

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Introduction

The lack of voice and data communication interoperability continues to represent a significant threat to public safety responders in Virginia and around the nation. After decades of experience with this issue, it is clear to first responder organizations that public safety communications and interoperability cannot be solved by any one entity alone. It will require a partnership among public safety organizations (local, state and federal) and industry.

The First Responder Sub-panel, which was chaired by Senator Stolle of Governor Warner's Secure Virginia Panel, identified radio communications interoperability - the ability of first responders to communicate with each other over divergent radio systems - as a critical post-9/11 priority for Virginia's first responders. In 2003, the Secure Virginia Panel formed the Interoperability Working Group, composed of first responder participants from fire, rescue, and law enforcement agencies throughout the Commonwealth, to make recommendations to the Panel. Those recommendations included:

- Create an Interoperability presence under the Secretary of Public Safety;
- Develop grant guidance for interoperability;
- Develop a Statewide Interoperability Strategic Plan;
- Hire a full-time Commonwealth Interoperability Coordinator; and
- Develop and conduct a Virginia Interoperability Conference.

In 2003 the Commonwealth and SAFECOM[1], a federal program managed by the Department of Homeland Security (DHS), entered into a Memorandum of Understanding (MOU) to develop a Strategic Plan for Statewide Interoperable Communications applying the SAFECOM locally driven approach principles to an effort to plan and implement statewide communications Interoperability. The National Institute of Justice (NIJ) was also very instrumental in the development of the original and revised statewide plan by providing resources and equipment from an interoperability grant that originated from a Congressional Earmark from U.S. Congressman Frank Wolf (VA). These partnerships resulted in the first version of the Commonwealth of Virginia Strategic Plan for Statewide Communications Interoperability (Strategic Plan).[2]

Virginia was the first state to hire a full time interoperability coordinator, forming the Commonwealth Interoperability Coordinator's Office (CICO), to focus on interoperability planning at the local, regional and state levels and to use local first responders to develop a Statewide Plan for Communications Interoperability. This local driven process that included 146 firefighters, police officers, sheriffs, and other public safety personnel was a major success. Virginia also created the

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[1] The SAFECOM program's mission is to help local, tribal, state, and federal agencies improve public safety response through more effective and efficient interoperable wireless communications.

[2] This project was supported through a MOU between the Commonwealth of Virginia and the U.S. Department of Homeland Security's SAFECOM program and an U.S. Department of Justice grant (2003-IJ-CX-K027) from the National Institute of Justice.

State Interoperability Executive Committee (SIEC) and State Interoperability Advisory Committee (SIAC) to serve as the governance structure to assist with guiding the Commonwealth's interoperability endeavors.

Due to these efforts and investments, Virginia has become a best practices model for interoperability strategic planning, which DHS and SAFECOM are sharing with other communities across the nation.

In 2005 the General Assembly passed Senate Bill 963 that created Section 9.1-1100 of the Virginia Code requiring the annual update and implementation of the Strategic Plan. Additionally, all agencies and localities must comply with and achieve consistency with the Strategic Plan by July 1, 2015 in order to remain eligible to receive state or federal funds for communications programs and systems.

In compliance with this new law the CICO, SIEC and SIAC have created this FY 2006 Strategic Plan.
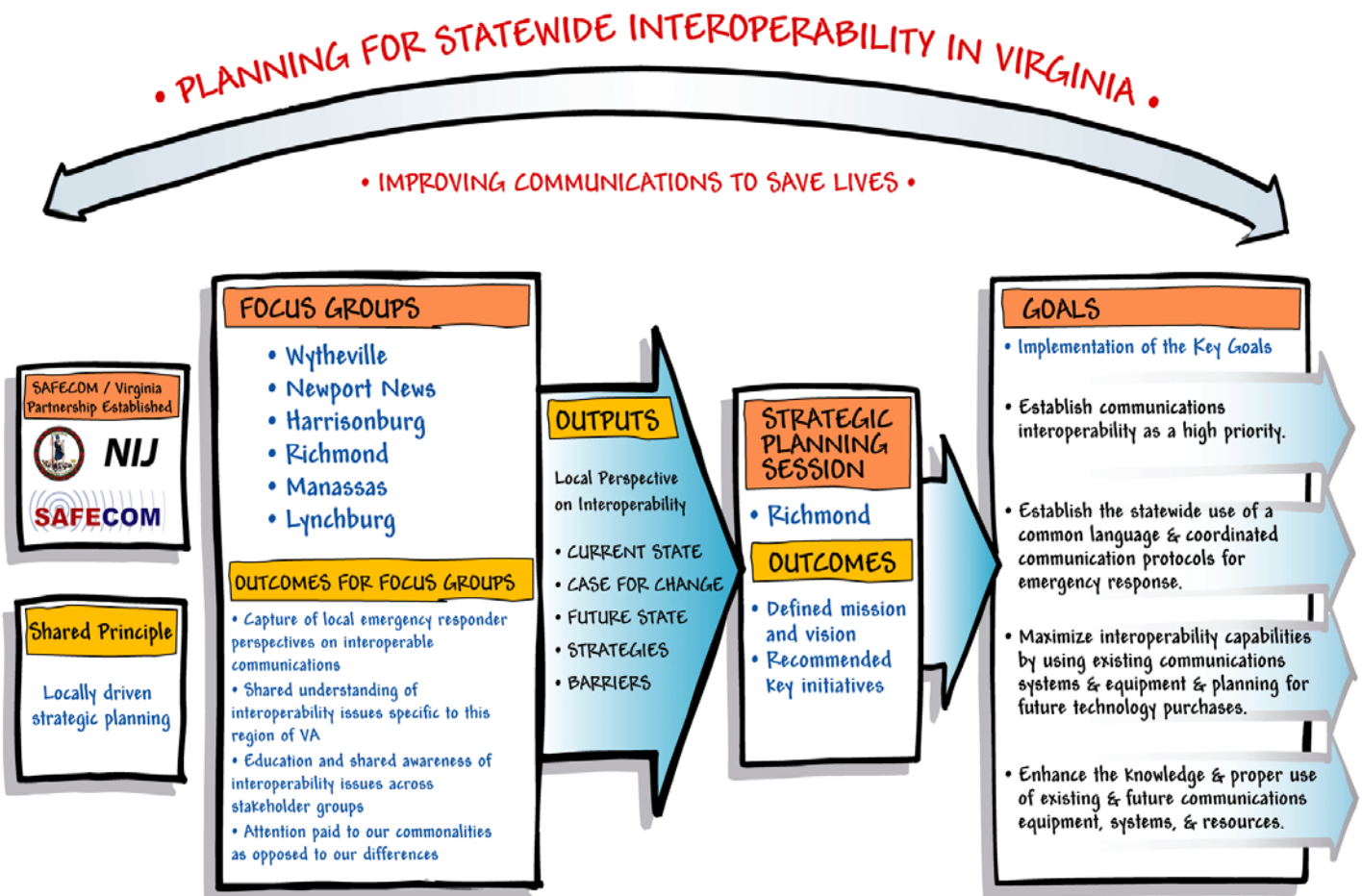
Accomplishments January 2005 – June 30, 2005

Between December 2004 and June 2005 the Commonwealth Interoperability Coordinators Office (CICO) working with the State Interoperability Executive and Advisory Committees was able to accomplish the following:

1. Hired a full time Commonwealth Interoperability Coordinator

In December 2003 Virginia hired a full time interoperability coordinator, located within the office of the Secretary of Public Safety. The Interoperability Coordinator works with all state agencies, localities and regional efforts while serving on the Commonwealth Preparedness Working Group.

2. Developed the Strategic Plan for Statewide Interoperable Communications

During 2004, six regional stakeholder meetings were held throughout Virginia to gather information from local and regional public safety responder communities to fuel the creation of the Strategic Plan. Governor Warner signed the Plan on October 4, 2004.

• PLANNING FOR STATEWIDE INTEROPERABILITY IN VIRGINIA •

• IMPROVING COMMUNICATIONS TO SAVE LIVES •

SAFECOM / Virginia Partnership Established
NIJ
SAFECOM

Shared Principle
Locally driven strategic planning

FOCUS GROUPS
- Wytheville
- Newport News
- Harrisonburg
- Richmond
- Manassas
- Lynchburg

OUTCOMES FOR FOCUS GROUPS
- Capture of local emergency responder perspectives on interoperable communications
- Shared understanding of interoperability issues specific to this region of VA
- Education and shared awareness of interoperability issues across stakeholder groups
- Attention paid to our commonalities as opposed to our differences

OUTPUTS
Local Perspective on Interoperability
- CURRENT STATE
- CASE FOR CHANGE
- FUTURE STATE
- STRATEGIES
- BARRIERS

STRATEGIC PLANNING SESSION
- Richmond

OUTCOMES
- Defined mission and vision
- Recommended key initiatives

GOALS
- Implementation of the Key Goals
- Establish communications interoperability as a high priority.
- Establish the statewide use of a common language & coordinated communication protocols for emergency response.
- Maximize interoperability capabilities by using existing communications systems & equipment & planning for future technology purchases.
- Enhance the knowledge & proper use of existing & future communications equipment, systems, & resources.

3. Established a governance structure to coordinate interoperability
The CICO will lead Virginia's interoperability efforts; however, a group of key stakeholders representing various disciplines, jurisdictions, and levels of government will play an important role in creating and sustaining partnerships essential to the governance structure.

4. The SIEC was designated as the reviewing body for recommendations on interoperability grant funding   In November 2004, the SIEC was designated by a memorandum as the reviewing body for recommendations on interoperability grants funding to the Commonwealth Preparedness Working Group (CPWG) and Secure Commonwealth Panel for interoperable communications initiatives.

5. Hosted a Statewide Interoperable Communications Conference
On October 19-20, 2004 the Commonwealth's first Interoperable Communications Conference was held with 270 attendees from localities and state agencies in attendance.

6. Distributed $1.7 million in local interoperability grants
The SIEC was tasked by the CPWG to make recommendations on distribution of $1.7 million in ODP funds to support local interoperable communication projects. The SIEC designed a process to solicit, evaluate and prioritize 62 separate grant proposals from localities. This process resulted in 20 localities receiving up to $100,000 each to support local interoperability projects.

7. Distributed $460,500 for local interoperability demonstration projects
The SIEC identified six local projects to serve as local demonstration projects. These projects were funded out of the National Institute of Justice (NIJ) Interoperability Grant that resulted from a Congressman Frank Wolf Earmark.

8. Assisted the Virginia Beach Metropolitan Statistical Area (MSA) in obtaining a $6 million dollar FY 2004 COPS interoperability grant
The CICO worked with the Virginia Beach MSA to ensure that the grant application complied with the Strategic Plan, showed a clear link to the Statewide Agencies Radio System (STARS) and focused on a regional approach that included all localities within the MSA.

9. Developed an Interoperability Website and Listserv
This website is used to distribute information about grants, projects, and standards and to conduct online registration for conferences and workshops. The website address is http://www.interoperability.publicsafety.virginia.gov/.

10. Established the requirement for the annual update of the Strategic Plan
The Virginia General Assembly passed SB 963 to ensure that Virginia continues to invest in efforts to improve interoperable voice and data communication planning efforts. Section 9.1-1100 of the Virginia Code requires the annual update and implementation of the Statewide Plan for Communications Interoperability.

Mission

Improve public safety in the Commonwealth of Virginia through enhanced data and voice communications interoperability between local, regional, state, and federal agencies.

2015 Vision

By 2015, agencies and their representatives at the local, regional, state, and federal levels will be able to communicate using compatible systems, in real time, across disciplines and jurisdictions, to respond more effectively during day-to-day operations and major emergency situations.

Virginia's Statewide Strategic Plan for Interoperable Communications identifies the key FY 2006 strategic goals and initiatives of the SIEC. The SIEC initiatives were developed with input from the SIAC and are critical steps towards achieving the 2015 Vision for improved public safety communications and interoperability. In addition, the SIEC identified the key tasks that will allow for the achievement of strategic initiatives.

To achieve the 2015 vision, the SIEC will undergo the following initiatives in FY 2006:

GOAL 1: Communications interoperability is a high priority for the Commonwealth

Initiative 1 - Develop, distribute, and promote interoperability information.

Tasks
- Develop information for elected officials, responders, and citizens.
- Provide information to elected officials, responders, and citizens through the website, CICO/SIEC Chair attendance at conferences, the statewide list serve, advice and consultation services, and printed materials.
- Document outreach activities on the website (i.e. calendar of events).
- Provide meeting minutes and other materials on the website.

Initiative 2 - Institutionalize a program management office (PMO) to support interoperable communications efforts in the Commonwealth.

Funding and Legislative Tasks
- Ensure continued support for CIC and staff support through grant funding in the absence of general funds support.
- Transition the CICO from grant funded to general funds support.
- Formalize the appointment of members of the SIEC through an Executive Order or legislation.
- Continue to support localities, regions, and state agencies in identifying and obtaining grant dollars.
- Coordinate and gather reporting information from local grantees

Performance Measurement Tasks
- Identify performance measures for strategic goals and initiatives.
- Track the progress of Initiative Action Teams.
- Measure overall progress of the Strategic Plan.

Communications Tasks
- Host the Statewide Interoperability Conference October 4-5, 2005.
- Maintain and update the "Interoperability in Virginia" website.
    - Produce and disseminate lessons learned.
    - Provide solutions and grant information to localities.
    - Develop RFP templates for localities.
- Provide materials and information as needed through conference attendance, printed materials and electronic media.

GOAL 2: Common Language and coordinated protocols and standards are utilized statewide

Initiative 3 - As defined by NIMS, identify and adopt common language protocols in the Commonwealth for day to day operations and major emergency situations.

Tasks
- Develop common language protocols.
- Identify and compile common language definitions and glossary.
- Obtain endorsements from SIEC member organizations.
- Investigate the efforts of other localities within the region that have moved to plain language to identify best practices (i.e. Montgomery County, MD).

Initiative 4 - Develop and promote technical standards and operational protocols.

Tasks
- Review national standards for guidance in the development of statewide standards and protocols that include NIMS and FCC narrowbanding requirements of 2011/2013.
- Provide technical standards and operational protocols for use in RFPs.
- Utilize CAPRAD to promote technical standards and operational protocols.
  - Provide a link to CAPRAD on the website.
  - Set up an opportunity for a CAPRAD representative to speak at the Statewide Interoperability Conference.

GOAL 3: *Interoperability capabilities are maximized by using existing and or future communications systems and technologies*

Initiative 5 - Develop recommendations to VITA on what interoperable communications equipment and services need to be included in state contracts.

Tasks
- Monitor existing and new technologies as they relate to interoperable communications equipment.
- Establish a reporting mechanism to VITA.

Initiative 6 - Promote the use of local, regional, state and federal mutual aid channels to foster interoperable communications.

Tasks
- Identify all existing mutual aid channels in the Commonwealth.
    - Create a survey or perform a data call to establish a baseline.
- Populate CAPRAD database with survey data.
- Include mutual aid channel information in promotional materials.
- Create a common plan for the monitoring and use of these channels within the Commonwealth.

Initiative 7 - Coordinate and assist localities and regions with the 800 MHz rebanding process mandated by the FCC.

Tasks
- Continue to conduct rebanding workshops.
- Regularly maintain rebanding web page.
- Support regional rebanding efforts.
    - Announce the availability of a VITA-hired technical consultant for localities on the website.
        - Technical consultant will provide frequency analysis, project management, 800 MHz reconfiguration contract negotiation, spectrum management, and spectrum legal services.

Initiative 8 - Develop the statewide 700 MHz plan and assist with implementation.

Task
- Provide oversight and guidance to VITA for frequency usage requests.

GOAL 4: *Training is provided to enhance effective use of communication systems*

Initiative 9 - Conduct training sessions for state interoperability grant recipients as appropriate.

Tasks
- Coordinate with and advise the Commonwealth Preparedness Working Group on grantee participation in training sessions.
- Provide Strategic Plan compliance information at the State Interoperability Conference and on the website for potential applicants.
- Develop interoperability equipment specifications and manufacturers list for use by localities.

Initiative 10 - Develop a lessons learned clearinghouse.

Tasks
- Develop a clearinghouse that includes reporting from grantees and information from on-going existing interoperability projects.
  - Create a standardized questionnaire for grantees and project managers for inclusion in the clearinghouse.
  - Provide contact information for local projects to get more information.

Next Steps

The first 90 days of roll out and the initial phases of implementation of this Strategic Plan are critical to gaining the support needed to successfully improve communications interoperability in the Commonwealth.

There are several key actions and activities that the CICO will focus on the initial implementation phase of the Strategic Plan. These activities include:

- Host a Statewide Interoperability Conference on October 4-5, 2005 in Virginia Beach, Virginia

- Review the interoperability governance structure to identify opportunities to increase efficiency and effectiveness

- Set up a Project Management Office (PMO) to support the CICO and implementation of the Strategic Plan

- Create Initiative Action Teams to start working toward implementing the initiatives contained in the Strategic Plan

Challenges

Effective Implementation of the Strategic Plan is dependant upon many factors within the Commonwealth. Several challenges have been identified that hinder enhancing data and voice communications interoperability. The key challenges are identified below:

Inadequate resources to implement the initiatives
The implementation of the initiatives will require significant resources. The Secure Commonwealth Panel established the position of Commonwealth Interoperability Coordinator to focus on improving interoperability communications in the Commonwealth; however, a single position cannot implement all of the identified initiatives. The successful implementation of this Plan will be contingent largely upon establishing sufficient resources to support the CIC in developing initiative action plans and coordinating with regional representatives to execute the initiatives.

Inadequate and inconsistent funding to jurisdictions
Funding available at the local, regional, state, and federal levels is neither consistent nor sufficient to support the complete public safety communications system lifecycle required for enhanced interoperability. The system lifecycle consists of planning, procuring, providing, training on, maintaining, upgrading, and replacing equipment. Funding typically occurs as a one-time isolated opportunity and is often earmarked specifically for the purchase of equipment, as opposed to other crucial components of the lifecycle. In addition, funding is neither apportioned equitably nor readily available at the local level, resulting in significant equipment disparities between jurisdictions even after adjusting for differences in population.

Separate and disparate local initiatives exist
Localities receive state and federal public safety grants that are either earmarked for specific purposes or used at the localities' discretion. These local initiatives may not be coordinated with other local, regional, or statewide communications interoperability initiatives, which may result in equipment purchases or upgrades that are not compatible with existing systems and equipment. Disparities in funding and system capabilities have resulted in a wide range of local communications initiatives that are often difficult to coordinate with other local or statewide systems. For example, if a locality or region migrates to an 800 MHz communications system, it loses connectivity with the Statewide Interdepartmental Radio System (SIRS)[3] unless specific resources are dedicated to maintain two systems and the low band mobile radios remain in the vehicles.

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[3] SIRS is a designated low-band voice communications system, which provides interoperable capabilities between local law enforcement and the VSP.

Inability to direct standard communications interoperability solutions

As a Commonwealth, Virginia's localities and regions have significant latitude to undertake their own initiatives. If localities identify solutions they feel enhance public safety, they have the flexibility to implement those solutions, regardless of whether they are interoperable with public safety solutions elsewhere. Commonwealth officials are often unable to gain support for establishment, or continuation of, existing open standards to address this problem, and thus regional coordination is stifled.

Lack of awareness and priority around communications interoperability

While the lack of interoperable communications systems has historically been a significant issue within the public safety community, the urgency and extent of the issue has only recently achieved widespread recognition. As partners with the public safety community, public officials and decision makers in the Commonwealth do not routinely receive sufficient information on the challenges surrounding communications interoperability. In addition, the public is not fully informed on the lack of communications interoperability capabilities in the Commonwealth; therefore, citizens are not demanding action from their elected officials.

Incompatible equipment and systems

The vendor-driven public safety communication technology market has contributed to localities' use of incompatible equipment and the rapid obsolescence of equipment and systems as a result of new technologies. Until vendors work together at the public safety community's behest to create an open architecture and manufacture compatible equipment, localities will continue to purchase equipment that may not be interoperable. Jurisdictions will also continue to have to replace obsolete equipment, rather than upgrading existing technology. When vendors do reach agreement regarding an open architecture, jurisdictions' legacy systems will remain incompatible or become obsolete unless the agreed-upon standards are backward-compatible with older equipment.

Overcoming the Challenges

This matrix identifies how the key goals and initiatives outlined in this Plan will begin to address each of the challenges.

Challenges	Goal #1	Goal #2	Goal #3	Goal #4
Inadequate Resources	√			
Inadequate and Inconsistent Funding	√		√	
Disparate Local Initiatives	√	√	√	√
Broad Flexibility	√	√	√	√
Lack of Awareness and Priority	√			
Incompatible Equipment			√	√

The Commonwealth Interoperability Coordinator's Office

The CICO, led by the Commonwealth Interoperability Coordinator, is essential to the successfully accomplish the goals and initiatives outlined in this Plan. The CICO is located within the Office of the Secretary of Public Safety and works across the various Secretariats and levels of government. The CICO functions primarily as an organization to coordinate initiatives, communicate information, and facilitate discussion on interoperability efforts between and among the Commonwealth's regions and jurisdictions as well as the federal government. In addition, the following functional requirements have been identified to support the development and implementation of the goals and initiative:

- Communications and Outreach

- Technology

- Training, Policies, and Procedures

- Grant Writing, Procurement, Finance, and General Administration
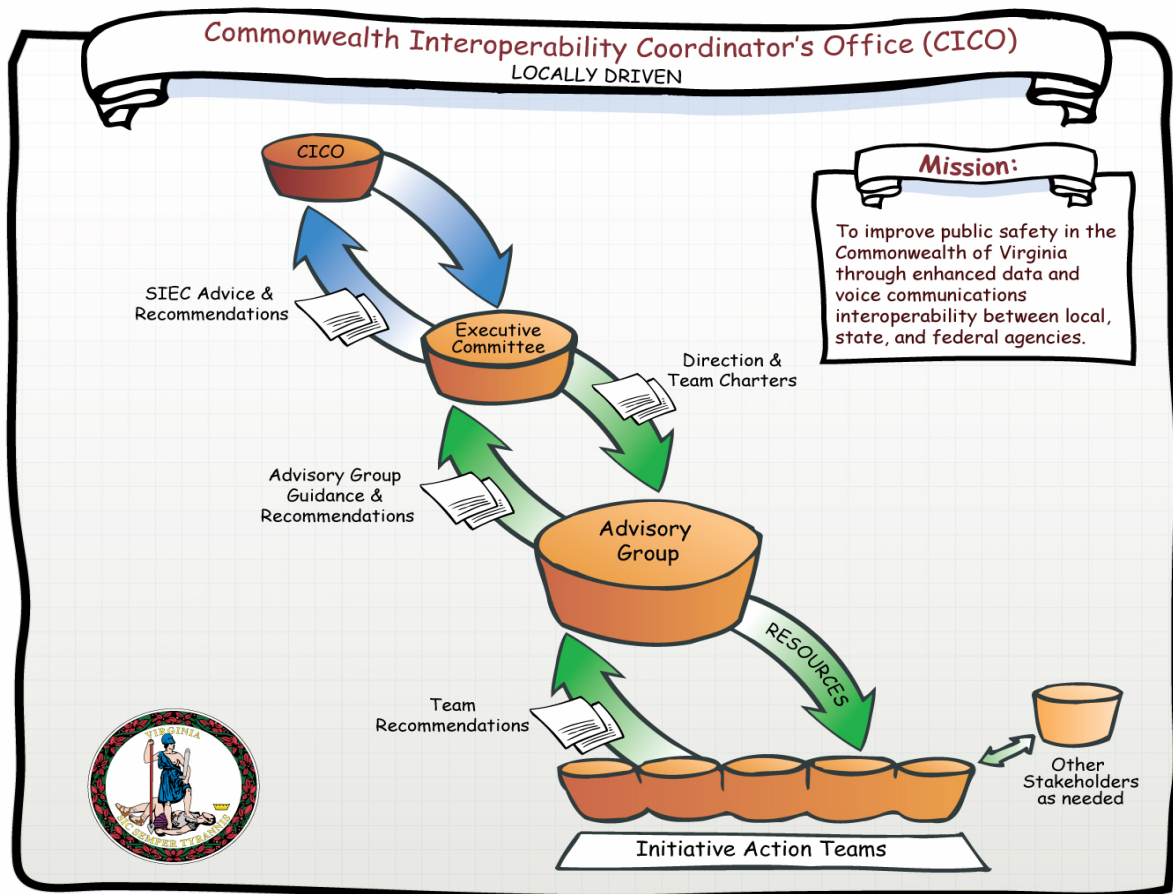
- Regional Coordination

As the scope and responsibilities of the CICO expand over time, or as initiatives are accomplished, these functional requirements may be readily modified to accommodate growth into other areas of interoperability.

Roles and Responsibilities
The Coordinator is responsible for ensuring the goals and initiatives included in this Strategic Plan are meeting the communications interoperability needs of the local and regional public safety practitioners in Virginia, as well as aligning with state and federal direction. General responsibilities of the Coordinator includes the following:

- Liaison between the local and regional public safety community, state agencies and Commonwealth officials

- Driving the implementation of the locally-focused Strategic Plan

- Serving as the liaison between the SIEC and other groups

- Revising the Strategic Plan annually

- Serving as a member of the CPWG

Below is a graphic depiction of the high-level flow of information and communications between members of the governance structure. This graphic shows how the CICO will coordinate with the SIEC and State Interoperability Advisory Group (Advisory Group).

Commonwealth Interoperability Coordinator's Office (CICO)
LOCALLY DRIVEN

CICO

Mission:

To improve public safety in the Commonwealth of Virginia through enhanced data and voice communications interoperability between local, state, and federal agencies.

SIEC Advice & Recommendations

Executive Committee

Direction & Team Charters

Advisory Group Guidance & Recommendations

Advisory Group

RESOURCES

Team Recommendations

Other Stakeholders as needed

Initiative Action Teams

State Interoperability Executive Committee

The SIEC will serve as the steering group for the Coordinator and will evaluate guidance and recommendations for the CPWG and Governor's Office. The SIEC will meet in person on at least a quarterly basis to review overall progress and approve the next set of goals and priorities.

The SIEC consists of 13 representatives from the local and state public safety associations and government that includes the following organizations:

- Virginia Association of Chiefs of Police
- Virginia Fire Chiefs Association
- Virginia Sheriffs' Association
- Virginia Association of Governmental EMS Administrators
- Virginia Association of Public Safety Communication Officials
- Virginia Association of Counties
- Virginia Municipal League
- Virginia Military Advisory Committee
- Statewide Agencies Radio System (STARS)
- Virginia Information Technologies Agency (VITA) Telecommunications Division
- Office of the Secretary of Public Safety
- Office of Commonwealth Preparedness
- Commonwealth Interoperability Coordinator

Roles and Responsibilities

The members of the SIEC will play a key role in the definition and implementation of the initiatives outlined in the strategic plan. The SIEC will provide substantive guidance to the Advisory Group, and Initiative Action Teams, as well as recommendations to the CICO, drawing upon their experience and knowledge of public safety needs and capabilities.

The SIEC members shall:
- Recommend an approach of Virginia interoperability efforts
- Develop formal recommendations to the CPWG
- Report information back to respective organizations
- Provide advice, feedback, and support to the CICO
- Resolve issues requiring policy, procedural, or other business decisions as needed
- Advocate for interoperable communications at more senior levels of government and among member constituencies
- Participate in periodic, pre-scheduled meetings
- Consider guidance and approve recommendations from the Advisory Group and Initiative Action Teams

State Interoperability Advisory Group

The State Interoperability Advisory Group (Advisory Group) will provide guidance and recommendations to the SIEC. The Advisory Group is comprised of representatives from local, regional and state public safety and government practitioner community. The Advisory Group will meet at least quarterly and will assist the CICO and SIEC to implement the Statewide Plan.

The Advisory Group consists of the 13 SIEC representatives and representation from the following organizations:

- Virginia Hospital and Healthcare Association
- Virginia National Emergency Number Association
- Amateur Radio Emergency Services (ARES)/ Radio Amateur Civil Emergency Services (RACES)
- Virginia Local Government IT Executives (VaLGITE)
- Virginia Army National Guard
- Virginia Department of Emergency Management
- Virginia Department of Fire Programs
- Virginia Department of Forestry
- Virginia Department of Health
- Virginia Department of Transportation
- Virginia Port Authority
- Virginia State Police
- Wireless E-911 Services Board
- Northern Virginia Emergency Preparedness Intergovernmental Coordinating Committee
- Hampton Roads Planning District Commission
- Metropolitan Washington Airports Authority (MWAA)
- FCC Region 20 (Northern VA) 800 MHz Committee
- FCC Region 42 (rest of Virginia) 800 MHz Committee
- FCC Region 20 (Northern VA) 700 MHz Committee
- FCC Region 42 (rest of Virginia) 700 MHz Committee
- At Large Fire
- At Large Police
- At Large EMS VA Association of Volunteer Rescue Squads

Additional groups and organizations to be considered for membership include: public works, local IT/communications, schools, Red Cross, local transportation, hospitals, and other additional EMS, Fire, and Law Enforcement organizations, as well as private sector representation including utilities and the Cellular Telecommunications Industry Association.

Roles and Responsibilities

The Advisory Group will provide guidance to the SIEC. This guidance will incorporate the knowledge and expertise of representatives from the local, regional, state, and federal public safety and government practitioner community. The Advisory Group will meet in person on at least a semi-annual basis to review overall progress as well as discuss and suggest priorities and initiatives to the SIEC. Between meetings, and when appropriate, Advisory Group members may participate on Initiative Action Teams. In addition, the CICO will track project initiatives and provide input to the Advisory Group through email, conference calls and other appropriate means.

The Advisory Group shall:
- Provide general guidance and recommendations to the SIEC and CICO
- Provide advice, feedback and support to the SIEC
- Participate in Initiative Action Teams to develop work products and implement the initiatives from the Strategic Plan
- Communicate decisions, plans and results to relevant constituencies
- Participate in periodic, pre-scheduled meetings.

Statewide Interoperability Channels

In Virginia there are certain channels with the various frequency bands (VHF, UHF, 700 MHz and 800 MHz) that are reserved for interoperable communications. The various groups listed below are currently using these statewide channels in the Commonwealth.

VHF Low Band (30-50 MHz)
39.54   State Interdepartmental Radio System (SIRS)

VHF High Band (150-174 MHz)
154.265 & 154.295   Fire Mutual Aid
155.205   EMS Mutual Aid
155.475   Law Enforcement Mutual Aid
155.400 & 155.340   Hospital Emergency & Administrative Radio (HEAR)
155.160   VDEM Search and Rescue Mutual Aid

800 MHz (Current)
821.0125/866.0125   Public Safety Mutual Aid CALL
821.5125/866.5125   Public Safety Mutual Aid TAC 1
822.0125/867.0125   Public Safety Mutual Aid TAC 2
822.5125/867.5125   Public Safety Mutual Aid TAC 3
823.0125/868.0125   Public Safety Mutual Aid TAC 4

800 MHz (After FCC Mandated Rebanding)
806.0125/851.0125   Public Safety Mutual Aid CALL
806.5125/851.5125   Public Safety Mutual Aid TAC 1
807.5125/852.0125   Public Safety Mutual Aid TAC 2
807.5125/852.5125   Public Safety Mutual Aid TAC 3
808.0125/853.0125   Public Safety Mutual Aid TAC 4
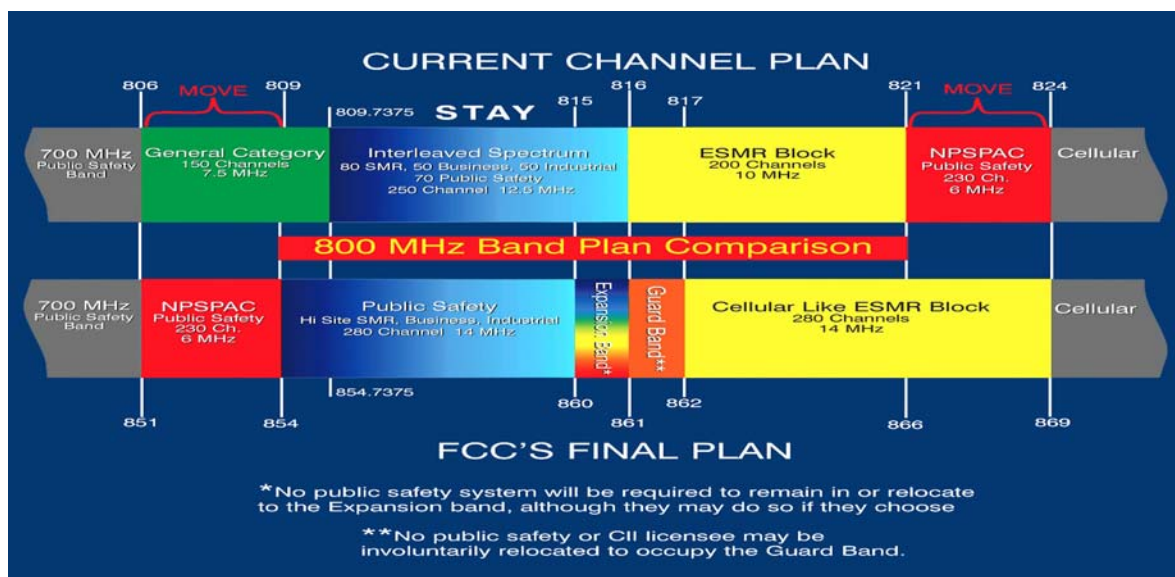
National Interoperability Channels

In the United States, there are certain channels within the VHF and UHF range of frequencies that are reserved for interoperable communications. These frequencies can be used on a non-routine basis for interoperable communications between any local or state entity. Additionally, these channels can be used across interstate boarders with neighboring public safety jurisdictions. The FCC has made these frequencies primary status as of January 1, 2005.[4] Below are the frequencies and suggested labels.

The State Interoperability Executive Committee and Advisory Group recommend that the Commonwealth of Virginia promote the use of these channels with the ones currently utilized to enhance interoperable communications in mutual aid situations.

VHF High Band (150-174 MHz)

151.1375 base/mobile	VTAC 1
154.4525 base/mobile	VTAC 2
155.7525 base/mobile	VCALL
158.7375 base/mobile	VTAC 3
159.4725 base/mobile	VTAC 4

UHF High Band (450-470 MHz)

453.2125 base/mobile	UCALLa
458.2125 base/mobile	UCALL
453.4625 base/mobile	UTAC 1a
458.4625 base/mobile	UTAC 1
453.7125 base/mobile	UTAC 2a
458.7125 mobile	UTAC 2
453.8625 base/mobile	UTAC 3a
458.8625 mobile	UTAC 3

Note—Additional maritime frequencies may be available under certain circumstances per guidelines set forth in FCC 00-348A1, Paragraphs 94 &95.

State Wide Agencies Radio System (STARS)

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[4] Reference proceedings of FCC Docket 96-86: Per FCC 00-348A1 Paragraphs 88-89

The Statewide Agencies Radio System (STARS) Program will facilitate the communications of 21 participating state agencies by upgrading the existing Virginia State Police land mobile and microwave radio networks. STARS will create an integrated, seamless, statewide, wireless voice and data communications system designed to meet the needs of these agencies. The system will be shared by agencies engaged in public safety, protection, and service; and will facilitate interoperability with and between localities at the county and city level. To accomplish this, the program will: increase capacity, upgrade the technology, and enhance coverage of the land mobile radio network; upgrade the technology of, and create disaster recovery alternate paths for the microwave radio network; implement statewide law enforcement mobile data; and facilitate unified call-taking and dispatching for all state-level law enforcement agencies.

Connecting state agencies that respond to both routine public service requirements, and to emergencies, often requires coordination of multiple agencies.

By facilitating interoperability with and between localities at the county and city level, The Commonwealth of Virginia Statewide Agencies Radio System (STARS) will enable agency responders – wherever they are located, on whatever radio platform – to seamlessly communicate as one, facilitating the move from independent operation to interdependent collaboration and cooperation.

Interoperable Communications for Today and Tomorrow
STARS operates seamlessly throughout the Commonwealth to provide 21 participating state agencies with mobile communications interoperable with local governments and federal agencies. STARS is piloting Motorola MOTOBRIDGE technology that enables each locality, at the county and city level, to communicate with users independent of their technology or radio frequency band used. Direct interoperability can also be employed with compatible radios (STARS mobile and portable radios being used on a locality or federal radio network), based upon the situation and the availability of on-scene command and control. STARS can also interconnect localities with each other, if required.

STARS utilizes the Project 25 Standards for Interoperability
STARS builds upon the already powerful State Police Land Mobile Radio (LMR) network – upgrading it with state of the art, P25/TIA102 technology. This equipment standard has been specified collaboratively by multiple user disciples throughout the country, and by radio manufacturers around the world. STARS provides multi-channel, trunked digital voice and data wireless communications specifically designed for public safety requirements.

STARS extends coverage throughout the Commonwealth… even in tunnels
STARS provides VHF and 800 MHz wireless communication coverage for six tunnels in the Commonwealth (Big Walker Mountain, Hampton Roads, Elizabeth River Downtown, Elizabeth River Midtown, Monitor/Merrimack, and East River

Mountain). The design allows for effective mobile radio, portable radio, and computer data communications within these tunnels. In addition to being designed for STARS, the tunnel design also accommodates existing VSP communication channels to increase the effectiveness of the overall Commonwealth migration to STARS.

Digital Vehicular Repeater System (DVRS)

The digital trunking technology will also be carried a step further for the agencies that use portables while away from their vehicles. STARS will include a Digital Vehicular Repeater System (DVRS), which will translate the VHF signal used between the tower and vehicle, into a 700 MHz signal used for vehicle-to-portable communications. Use of the DVRS will allow communications to be encrypted and secure over the entire radio circuit from the originator to the recipient.

Supporting mobile data

Beyond voice, STARS enables access to data needed for first responders to be better prepared and informed for enhanced decision making intelligence.

STARS will employ an Integrated Voice and Data (IV&D) land mobile radio architecture that uses the same mobile radio for both voice and mobile computer communications. Integrating the voice and data networks saves the Commonwealth the expense of a separate data infrastructure with an additional radio/modem in each vehicle. The IV&D infrastructure will also provide Over-the-Air Re-Keying (OTAR) of the radio encryption. This allows the encryption codes resident in the vehicle's equipment to be managed remotely.

The system provides responders in the field:

- Remote access to law enforcement databases
- Intra-agency and inter-agency text messaging
- Interfaces with Virginia State Police (VSP) Computer Aided Dispatch
- Global Positioning System (GPS) support for Automated Vehicle Location (AVL).

Robust, fault-tolerant, secure – serviceable for years to come

STARS uses a redundant, fault-tolerant, hierarchal design that allows for re-routing in case of single point failure. In all applicable components, STARS has addressed safeguards to system security, including controlled system access, Advanced Encryption Standard (AES) encryption, and multiple security layers.

A STARS Network Fault Management (NFM) subsystem manages transmitter site/equipment alarms and controls various site functions. The NFM subsystem collects data automatically, and processes it for presentation to decision makers. These management tools provide monitoring equipment and systems alarms over IP (internet protocol) for the Microwave and IV&D networks. The data is

used to operate the network, analyze the flow of site alarm and system control data, offer system solutions and handle pre-defined alarm situations automatically. The system generates reports for the engineers and operators administering the network.

The Network Operations Center (NOC) at the State Police Headquarters (SPHQ) houses personnel on a 24/7 basis to identify, remotely correct alarm conditions or dispatch technicians.

STARS agency members

Alcohol Beverage Control	Capitol Police
Chesapeake Bay Bridge & Tunnel Police	Conservation and Recreation
Corrections	Charitable Gaming
Emergency Management	Environmental Quality
Fire Programs	Forestry
Game and Inland Fisheries	Health
Juvenile Justice	Military Affairs
Mines, Minerals and Energy	Motor Vehicles
State Police	Transportation
Virginia Information Technologies Agency	Virginia Port Authority
Virginia Marine Resources Commission	

About UARC

The User Agency Requirements Committee (UARC) is a group comprised of one or two persons from each of the 21 agencies that have agreed to join STARS. These persons meet monthly/quarterly to discuss progress, updates and issues and to share their experiences in implementing STARS.

The key UARC objective is to ensure their agency's unique requirements are meet. Another objective is educational: providing STARS users with the information they need to feel more comfortable with the new system – for example, addressing concerns of dispatchers who may think that they will find themselves speaking to numerous individuals, all at the same time.

There are three ways local agencies can participate in STARS:

1. Each county and city in the Commonwealth will be provided a single interface at no charge. This patch will be activated for use by a STARS dispatcher, and will be able to interface any radio system, regardless of frequency or manufacturer.

2. Entities including other agencies and localities, with sufficient VHF radio frequencies for their use, will be able to join STARS through a needs-based assessment process.

3. Purchase STARS compatible equipment directly at State Contract prices.

STARS – Reaching across the Commonwealth

The STARS build-out is anticipated to occur over a six-year period. STARS is scheduled in December 2005 to be first operational in the Richmond area, which includes 21 counties and four cities. A single interface link will be provided to each of the counties and independent cities to bring interoperability at no cost to the jurisdiction. In a wide scale emergency, localities may be connected to each other in this manner, thus providing regional intercommunications. The number of links may be increased as additional radio frequencies are obtained for STARS. These links can also be used to connect locality radio talk-groups or channels to each other without being on a STARS talk-group. In-band (VHF and 700/800MHz) direct, radio-to-radio communications on locality radio networks is also possible if the situation warrants it.

Operational stages:
- Richmond -- December 2005
- Tidewater -- May 2008
- Culpeper -- July 2008
- Northern Virginia -- October 2008
- Salem -- April 2009
- Appomattox -- May 2009
- Wytheville -- September 2009

For more information about STARS please contact Captain Michael Bolton or STARS Team at (804) 674-2443.

State Interdepartmental Radio System (SIRS)

SIRS is a low band frequency 39.54 MHz that is currently used statewide by local law enforcement to communicate between localities and the Virginia State Police (VSP). SIRS was developed in 1978 and since most law enforcement radios

used low band it made sense so that the existing radios could use multiple frequencies. SIRS has four primary goals:

- Direct, real time car to car radio communications between law enforcement agencies;
- Provide radio communications during prisoner transports; and
- Provide interoperability between localities and also with VSP.
- A highly reliably network.

SIRS is not to be used for routine radio traffic, since this type of use bogs down the system. This system provides the ability for direct interoperability and does not rely upon a dispatch function for those with SIRS equipment.

SIRS is governed by the SIRS Advisory Board, which is appointed by the Secretary of Public Safety. The SIRS Board is responsible for policy formation, eligibility for membership, and research on matters relating to public safety communication problems affecting the Commonwealth's ability to deliver effective law enforcement services.

SIRS is widely used by rural localities to communicate with VSP on a daily basis since many of these localities still operate low band radio systems. Many localities have migrated to 800 MHz and high band radio systems, which require some type of patch or interconnectivity to continue the use of SIRS. However, in some cases these localities or regions have severed the use of SIRS due to the costs associated with maintaining two systems.

SIRS continues to provide direct interoperability between locality law enforcement and VSP throughout Virginia. The 39.54 MHz frequency can be used throughout Virginia to link up local law enforcement with VSP providing true interoperability, which increases public safety. While this system is over 30 years old it is still widely used and effective.

For more information about SIRS please contact Sheriff Farrar Howard at (804) 966-9502.

Virginia Geographical Information Network (VGIN)

The Virginia Geographic Information Network (VGIN), a Division of the Virginia Information Technologies Agency (VITA), is responsible for statewide coordination of geospatial technologies. Since 1998, VGIN, with the support of the VGIN Advisory Board and partners in state, local, and federal government, and the private sector, has worked to produce a truly seamless, efficient and interoperable geospatial capability statewide.

Geographic information systems (GIS) software allows users to map and spatially analyze data. Local Governments in Virginia have rapidly adopted GIS technology to support E-911, tax mapping, utility mapping and planning. In addition at least 25 state and 12 federal government agencies are using GIS technology in Virginia to support activities including transportation planning, economic development, public safety, resource protection, and more.

Three critical factors affect interoperability in geospatial technologies: (1) geospatial data specification (i.e. scale, projection, format, etc.), (2) geospatial software formats, and (3) enterprise systems.

Geospatial Data

VITA/VGIN established the Virginia Base Mapping Program (VBMP) in 2001. This program's goal is to establish and maintain one consistent, accurate, foundational digital base map (geospatial data foundation) upon which local government and many regional, state, and federal geospatial data applications could be built, producing an efficient statewide geospatial infrastructure.

In 2002, the Virginia Wireless E-911 Services Board funded the VBMP [$8.2 Million], in support of statewide implementation of federal requirements for E-911 emergency response services for cellular phones. High-resolution digital orthophotography was acquired for the entire land base of Virginia in the spring of 2002.

In February 2003, VGIN began delivery to each of Virginia's 134 independent cities and counties, including 128 E-911 Public Safety Answering Points (PSAPs), a DVD set including High-resolution digital orthophotography covering the county/city, as well as imagery for adjacent communities. Such regional coverage was essential to meeting the mutual response obligations of local E-911 operations.

The VBMP statewide imagery has produced a single consistent, seamless base map, providing the foundation for a consistent enterprise architecture for GIS throughout Virginia. A seamless, high quality base map ensures that data sharing for state and local, public and private business applications, including E-911 response, public safety planning, permit tracking, natural resource protection, transportation planning and economic and labor analysis, operate at the highest possible efficiency and can be consistently applied anywhere in Virginia. VITA/VGIN has limited funding that will be used to initiate the first update of the 2002 VBMP imagery in the spring of 2006. [VITA/VGIN's VBMP imagery program won NASCIO's 2004 Digital Government to Government Award].

In 2004, VITA/VGIN further leveraged the VBMP by establishing a collaborative program across all of Virginia's local governments to produce a seamless digital road file with road names and addresses. The statewide VBMP road centerline file (RCL) will be available in the fall of 2005. The VBMP RCL establishes a statewide "standard" for road/highway mapping and addressing in Virginia. The statewide file will be maintained by VITA/VGIN in collaboration with all of

Virginia's local governments and the Virginia Department of Transportation (VDOT). In addition, VITA/VGIN has acquired or produced seamless statewide digital files for hydrography, rail, and a digital terrain model (a 3 dimensional surface). VITA/VGIN is also working with neighboring states to share geospatial data allowing VGIN to extend Virginia's digital base map up to fifty miles into our neighboring jurisdictions ensuring our border communities have the data required to meet there geospatial application needs.

Finally, VITA/VGIN, under a grant from the Governor's Office of Commonwealth Preparedness, is coordinating the acquisition (and ultimately standardization) of over 70 additional public safety related geospatial data layers for inclusion in the Virginia Readiness, Response, and Recovery GIS (VR3). The VR3 is designed to provide public safety officials and decision makers a "single tactical landscape" for evaluating public safety data and events through secure Internet access. The VR3 will come on line in the fall of 2005.

Geospatial Software
The Commonwealth of Virginia has been fortunate that 95 percent or more of the geospatial installations in the state use GIS software from Environmental System's Research Institute (ESRI) the largest and most rapidly growing geospatial software vendor. This software commonality removes many obstacles to interoperability in GIS. In addition, VITA/VGIN follows guidelines and works with the Open Geospatial Consortium, Inc, which has addressed geospatial interoperability since the early 1990's.

Geospatial Enterprise Services
Under the direction of the Information Technology Investment Board (ITIB), the Commonwealth's Chief Information Officer (CIO), and the VGIN Advisory Board, VITA/VGIN has established several consolidated geospatial enterprise services in order to provide a more effective and efficient means of supporting geospatial technologies across all constituencies in the Commonwealth. These services will come on line in the fall of 2005 and will include:

- o <u>One Stop Geospatial Information Portal</u> – Access to a catalogue of geospatial contacts and resources across all constituencies in the Commonwealth.
- o <u>Metadata Clearinghouse</u> – A consolidated catalogue of geospatial data assets maintained by state, local, and federal government organizations across the Commonwealth. The Metadata clearinghouse follows federal and state formatting standards and includes a search tool, which will allow users, and the public to search for, identify, and evaluate Virginia's geospatial data assets.
- o <u>Virginia Geospatial Data Library and Exchange Services</u> – will provide one-stop access to geospatial data assets which can be interactively selected, formatted and downloaded for local use.
- o <u>Internet Mapping Services</u> – will allow users to access large or rapidly changing geospatial data layers (i.e. VBMP imagery, VBMP road centerlines) and integrate them into local applications without the overhead of local storage and maintenance.

Finally VITA/VGIN has established and maintains 16 regional work groups of local government GIS managers and currently, 3 state agency geospatial manager work groups. These working groups provide forums for collaboration on all geospatial issues including data specifications and formats, systems architecture, etc. These groups recognize the significant value produced through improved interoperability and their efforts are focused on working together to establish a more effective and efficient statewide geospatial network and infrastructure.

Ultimately, the VBMP, consistent GIS software, enterprise services, and statewide collaboration have together established a consistent, statewide foundation for geospatial products and services, unprecedented interoperability across jurisdictions, and a statewide geospatial infrastructure that will support the greatest efficiencies in the sharing of data and applications.

For more information concerning VGIN please visit the VGIN website at www.vgin.virginia.gov or contact Bill Shinar at (804) 786-8175.

WebEOC

WebEOC is an incident management system recently purchased by the Virginia Emergency Operations Center (VEOC). WebEOC is currently accessible through the Virginia Department of Emergency Management's (VDEM) intranet. In the near future other authorized users will be able to access WebEOC using the Internet. Because the information is Web-based, real-time incident viewing and tracking is available to authorized users anywhere in the world.

The fact that Maryland and the District of Columbia (D.C.) EOC's currently use WebEOC will allow Virginia to share incident information with our neighbors easier than ever. Jurisdictions, state agencies, other states, and various support personnel will potentially be able to enter data and view status boards through WebEOC during emergency situations - without purchasing the product. This allows all concerned agencies and jurisdictions to have available the same real-time information simultaneously.

Jurisdictions and state agencies that choose to purchase the WebEOC software will be able to customize it to their needs. It is possible to enter data on one system and have it forwarded to VDEM's version of WebEOC. This avoids dual entry of data - saving time, effort, and money. Links to agency specific sites, such as GIS data, can be made through WebEOC. WebEOC also has its own email and chat functions so that sensitive data can be shared among authorized users without being compromised. In addition, WebEOC contains a briefing tool, MapTac, allowing users to simultaneously update information and display it.

WebEOC is a user-friendly product and can be modified/customized to meet the needs of specific agencies. User ids are used to control access to WebEOC and control what data is viewed, what data is accessible, what data can be updated, and what data can be deleted.

Through the use of WebEOC, jurisdictions, state agencies, and support personnel will have access to timely and useful data, which will eliminate the need for redundant efforts and dual entry of data. All authorized users will have access to timely information in the formulation of decisions. Status boards can be shared among users. This allows for the interoperability of efforts among all affected during an emergency.

For more information on WebEOC in Virginia please contact Harry Colestock at (804) 674-2408.

Capital Wireless Integrated Network (CapWIN)

The Capital Wireless Integrated Network (CapWIN) program is a partnership between the Commonwealth of Virginia, the State of Maryland, and the District of Columbia to develop an integrated first responder communication and information sharing network to connect and provide critical data to first responders across jurisdictions and disciplines. Focusing initially on first responders in the field, this unique and challenging program has created the first multi-state and multi-discipline interoperable public safety wireless data system in the United States. CapWIN is a single, open, shared, and secure system for the public safety and transportation communities at all levels of government. CapWIN is part of the new umbrella organization, the Mid-Atlantic Communications Interoperability Partnership (MACIP), which has been established to provide an overarching structure to coordinate the operational overlap among public safety and transportation agencies.

CapWIN's current capabilities include:
- Incident Management (Structured Messaging)
- Access to 3 State Criminal Justice Databases from VA, MD, and D.C. (VCIN, MILES, WALES) as well as National Crime Information Center
- One-to-One & Group Communication (Public and Private Messaging)
- Global Directory with First Responder Profiles
- Multiple Form-factor Support (PC & PDA)
- National Library of Medicine's "WISER" HAZMAT Database Partnership
- Security (FIPS 140-2 Compliant)
- Technology Certified as DHS "Approved Product for Homeland Security"

For all public safety and transportation entities throughout Virginia, Maryland, and the District of Columbia, CapWIN is **immediately available at no cost**. Agencies that wish to use CapWIN today need only acquire mobile data computers and wireless access to a commercial service provider, e.g., Verizon, Cingular, NEXTEL, etc., if they do not already have mobile data system. CapWIN's existing connections to multiple commercial networks provide secure access to the CapWIN application suite, including law enforcement databases. CapWIN's current network infrastructure also provides the opportunity for fixed station (desktop) access through existing state agency connections, e.g., COVANET (VA), Network MD, and the D.C. Wide Area Network.

Using CapWIN, agencies can instantly communicate across their organizations, including with field personnel equipped with mobile data computers. In addition, CapWIN
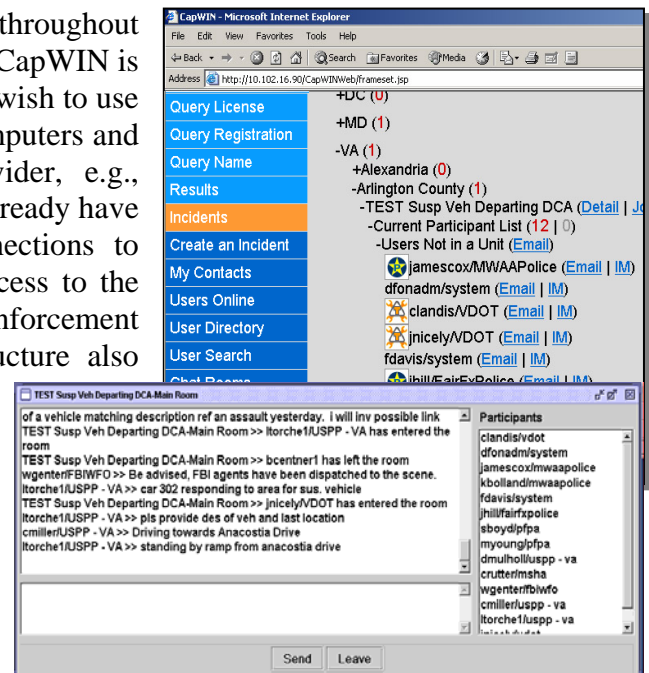
users can instantly communicate with all other online users and access CapWIN's full User Directory which contains contact information and individual skill profiles for all users.

CapWIN has also recently released its first PDA client, which provides access through a connected PocketPC PDA to CapWIN's User directory, one-to-one messaging, and access to state/federal criminal databases. Since the cost of a connected PDA can be substantially lower than a mobile data computer mounted in a vehicle, the "cost of entry" to join the CapWIN community can be even less if a PDA can meet the operational needs of an agency.

Through CapWIN's enhanced messaging capabilities, smaller jurisdictions can use the CapWIN application as a dispatch solution, as well as for other operational tasks, e.g., "roll call" functions using group messaging functions. Agencies can create private discussions available only to their own users as well as "public rooms" open to the larger CapWIN community across agencies and jurisdictions.

As an example, the Waynesboro Police Department in the Shenandoah Valley of Virginia is using CapWIN via mobile data and desktop computers. Waynesboro plans to use CapWIN to support day-to-day operations including law enforcement queries, individual and group messaging as well as intra-departmental communications. As one of eight Virginia public safety and transportation agencies using CapWIN today, Waynesboro is also looking forward to communicating with other CapWIN users in neighboring jurisdictions and across disciplines.

As a system designed to "enable interoperability for first responders everywhere they are," connecting to CapWIN can assist smaller jurisdictions in qualifying for Federal and state grants, including Homeland Security Grants that now require agencies large and small to demonstrate how they are achieving interoperability. CapWIN enables interoperability "out of the box" by connecting users regardless of location or agency affiliation.

Query Name - Stringbean Leroy 09/16/1948 M W VA

Query Results | **Source Information**

Record Type	MILES	VCIN	WALES	NCIC	NLETS	OTHER
Concealed Weapon Permit		Hit				
Deported Felon						
Drivers License		Reply - No Record				
Missing Person		Hit		Hit		
Parole						
Restraining Order						
Sexual Offender		Reply - No Record				
Stolen Vehicle/Plate						
Vehicle Registration		Hit				
Violent Gang						
Wanted Vehicle						
Warrant		Hit				
Other						

CapWIN software is currently free to local, state and Federal users across Virginia, Maryland and the District of Columbia. In the future, CapWIN plans to become a largely self sustaining organization through the collection of user fees.

To learn more about how to connect to CapWIN, including information on current users, hardware requirements and connectivity options, please contact Roddy Moscoso at rmoscoso@capwin.org (301) 614-3728.

Appendix A: Participating Stakeholders

Representatives of the following stakeholder groups participated in the communications interoperability strategic planning process:

State Agencies

- Office of the Secretary of Public Safety (SPS)
- Office of Commonwealth Preparedness (OCP)
- Virginia Department of Emergency Management (VDEM)Virginia Department of Fire Programs (VDFP)Virginia Department of Forestry (VDOF)Virginia Department of Health (VDH)
- Virginia Department of Military Affairs
- Virginia Department of Transportation (VDOT)Virginia Information Technology Agency (VITA)Virginia State Police (VSP)

Working Groups

- Secure Commonwealth Panel (SCP)
- Commonwealth Preparedness Working Group (CPWG)
- State Interoperability Executive Committee (SIEC)
- State Interoperability Advisory Committee (SIAC)

State and Local Associations

- Association of Public Safety Communication Officials (APCO)
- Capital Region Communications Steering Committee
- Hampton Roads Planning District Commission
- University of Virginia Medical Center
- Virginia Association of Chiefs of Police (VACP)Virginia Association of Governmental EMS Administrators (VAGEMSA)Virginia Coalition of Police and Deputy Sheriffs (VCOP)
- Virginia Fire Chiefs Association (VFCA)
- Virginia Professional Fire Fighters (VPFF)
- Virginia Sheriffs' Association (VSA)
- Virginia Municipal League (VML)
- Virginia Association of County Officials (VACO)

Federal Agencies

- Department of Justice
  - National Institute of Justice (NIJ)
- Department of Homeland Security
  - SAFECOM

Appendix B: Suggested Resources

Virginia Interoperability Web Page

- www.interoperability.publicsafety.virginia.gov

Federal Interoperability General Information

Organizations that provide interoperability solutions support and education:

- AGILE Program (www.ojp.usdoj.gov)
- Joint Tactical Radio System (jtrs.army.mil)
- GAO Report on interoperable communications (www.gao.gov/new.itmes/d04740.pdf)
- National Incident Management System (NIMS) training (training.fema.gov/EMIWEB/IS/is700.asp)
- National Law Enforcement and Corrections Technology Center (www.nlectc.org)
- SAFECOM (www.safecomprogram.gov)

SAFECOM Federal Partners

Federal departments working towards interoperable communications:

- Department of Agriculture (www.usda.gov)
- Department of Defense (www.defenselink.mil)
- Department of Energy (www.doe.gov)
- Department of Health and Human Services (www.hhs.gov)
- Department of Homeland Security (www.dhs.gov)
- Department of the Interior (www.doi.gov)
- Department of Justice (www.usdoj.gov)
- Department of the Treasury (www.ustreas.gov)

State Partners

- Virginia Department of Emergency Management (www.vdem.state.va.us)
- Virginia Department of Fire Programs (www.vdfp.state.va.us)
- Virginia Department of Health (www.vdh.state.va.us)
- Virginia Office of Commonwealth Preparedness (www.commonwealthpreparedness.virginia.gov)
- Virginia Office of the Secretary of Public Safety (www.publicsafety.virginia.gov)
- Virginia STARS (www.publicsafety.virginia.gov/Initiatives/STARS.cfm)
- Virginia State Police (www.vsp.state.va.us)

Local Public Safety Organizations

- Virginia Association of Chiefs of Police (www.vachiefs.org)
- Virginia Association of Governmental EMS Administrators (www.vagemsa.org)
- Virginia Fire Chiefs Association (www.sfcav.org)
- Virginia Professional Fire Fighters (www.vpff.org)
- Virginia Sheriffs' Association (www.virgniasheriffs.org)

Grants Information

- Department of Homeland Security (www.dhs.gov/dhspublic/display?theme=18)
- National Institute of Justice (www.ojp.usdoj.gov/nij/funding.htm)
- Office of Community Oriented Policing Services (www.cops.usdoj.gov)
- Office of Domestic Preparedness (www.ojp.usdoj.gov/odp/grants_programs.htm)

Communications Spectrum

Federal agencies that manage the commercial and public communications spectrum:

- Federal Communications Commission (wireless.fcc.gov/publicsafety)
- National Telecommunications and Information Administration (www.ntia.doc.gov)

Technology and Standards Information

Standards bodies working to promote interoperable communications technology:

- Association of Public-Safety Communications Officials, International (www.apcointl.org)
- Capital Wireless Integrated Network (CapWIN) (www.capwin.org)
- Institute of Electrical and Electronics Engineers (www.ieee.org)
- International Telecommunication Union (www.itu.int)
- National Institute of Justice's Technology Programs (www.ojp.usdoj.gov/nij/sciencetech)
- National Institute of Standards and Technology (www.nist.gov)
- Project 25 (www.project25.org)
- Project Mobility for Emergency and Safety Applications (MESA) (www.projectmesa.org)
- Telecommunications Industry Association (www.tiaonline.org)

Glossary of Terms[5]

Analog: A signal that may vary continuously over a specific range of values.

Band*: the spectrum between two defined limited frequencies. For example, the Ultra High Frequency (UHF) is located from 300 MHz to 3,000 MHz in the radio frequency spectrum.

Bandwidth: The range within a band of frequencies; a measure of the amount of information that can flow through a given point at any given time.

Block grant: Federal grant funding that is allocated to state and localities based on a pre-determined statutory formula.

Channel*: A single unidirectional or bidirectional path for transmitting or receiving, or both, of electrical or electromagnetic signals.

Communications interoperability: The ability of public safety agencies to talk across disciplines and jurisdictions via radio communications systems, exchanging voice and/or data with one another on demand, in real time, when needed, and as authorized.

Communications system*: A collection of individual communication networks, transmission systems, relay stations, tributary stations, and data terminal equipment usually capable of interconnection and interoperation to form an integrated whole. The components of a communications system serve a common purpose, are technically compatible, use common procedures, respond to controls, and operate in unison.

Coverage*: The geographic area included within the protected range of a wireless radio system based upon their FCC licenses.

Cycle: One complete performance of a vibration, electrical oscillation, current alternation, or other periodic process.

Digital: Voice communication occurs as an analog signal; that is, a signal with a voltage, frequency, or phase level that continuously varies. Digital signals at baseband occur as the presence or absence of electronic pulses, often representing only one or many values. Voice transmissions may be sent over

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[5] Terms marked with an asterisk (*) are as defined in the National Task Force on Interoperability (NTFI) "Why Can't We Talk? Working Together To Bridge the Communications Gap To Save Lives," February 2003.

digital radio systems by sampling voice characteristics and then converting the sampled information to a digital format.

Discretionary grant: Federal grant funding distributed at the discretion of the agency administering the program funding, usually through a competitive process.

First responders: Individuals who in the early stages of an incident are responsible for the protection and preservation of life, property, evidence, and the environment, including emergency response providers, as well as emergency management, public health, clinical care, public works, and other skilled support (such as equipment operators) that provide immediate support services during prevention, response, and recovery operations.[6]

Formula grant: Federal grant that is allocated based on a predetermined statutory formula.

Frequency*: The number of cycles or events of a periodic process in a unit of time.

Frequency bands*: Where land mobile radio systems operate in the United States, including:

High HF	25-29.99 MHz
Low VHF	30-50 MHz
High VHF	150-174 MHz
Low UHF	450-470 MHz
UHF TV Sharing	470- 512 MHz
700 MHz	764-776/794-806 MHz
800 MHz	806-869 MHz

Grant: Funding made available to local agencies from State and Federal government agencies, as well as from private sources, such as foundations. Grants usually require the submission of a formal application to justify one's funding request.

Hertz: Abbreviation for cycles per second.

Infrastructure*: The hardware and software needed to complete and maintain the radio communications system.

Interference*: Extraneous energy, from natural or man-made sources, that impeded the reception of desired signals.

Jurisdiction: The territory within which power or authority can be exercised.

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[6] First Responder as defined the December 17, 2003 Homeland Security Presidential Directive/HSPD-8, Subject: National Preparedness

Locality: A particular neighborhood, place, or district.

Local revenue fund: Funding obtained by local governments through local taxes (e.g. sales tax, property tax), user fees, and other user charges, as well as through the issuing of debt instruments, such as bonds.

Modem: An acronym for modulator/demodulator, which is a device that translates digital signals coming from a computer into analog signals that can be transmitted over standard telephone lines. The modem also translates the analog signal back into a digital signal that a computer can understand.

Mutual aid: The mutual aid mode describes major events with large numbers of agencies involved, including agencies from remote locations. Mutual aid communications are not usually well planned or rehearsed. The communications must allow the individual agencies to carry out their missions at the event, but follow the command and control structure appropriate to coordinate the many agencies involved with the event.

Mutual aid channel: A radio channel specifically allocated for use during emergency mutual aid scenarios.

Narrow-banding: Generally, narrowband describes telecommunication that carries voice information in a narrow band of frequencies. For state and local public safety, narrow-banding typically refers to the process of reducing the useable bandwidth of a public safety channel from 25 kHz to 12.5 kHz. The FCC issued the migration of Private Land Mobile Radio systems using frequencies in the 150-174 MHz and 421-512 MHz bands to narrowband technology. These rules set deadlines on applications for new wideband systems, modifications of existing wideband systems, manufacture and importation of 25 kHz equipment, the requirement for public safety to migrate to 12.5 kHz systems by January 2018.

Receiver: The portion of a radio device that converts the radio waves into audible signals.

Refarming: An administrative process being conducted by the FCC to reallocate channel bandwidths and, as a result, promote spectrum efficiency.

Repeater: In digital transmission, equipment that receives a pulse train, amplifies it, retimes it, and then reconstructs the signal for retransmission; in fiber optics, a device that decodes a low-power light signal, converts it to electrical energy, and then retransmits it via an LED or laser source. Also called a "regenerative repeater".

Spectrum: The region of the electromagnetic spectrum in which radio transmission and detection techniques may be used.

Spectrum efficiency: The ability to optimize the amount of information sent through a given amount of bandwidth.

Steering committee: A group of usually high-level officials charged with setting policy for a project.

Supplemental responders: Responders who provide support to first responders during incidents requiring special assistance. Supplemental responders include:

- Emergency Management: Public protection, central command and control of public safety agencies during emergencies
- Environmental Health/Hazardous Materials specialists: environmental health personnel
- Homeland Security and Defense units
- Search and Rescue teams
- Transportation personnel

Transmitter: The portion of a radio device that sends out the radio signal.

Trunked radio system*: A system that integrates multiple channel pairs into a single system. When a user wants to transmit a message, the trunked system automatically selects a currently unused channel pair and assigns it to the user, decreasing the probability of having to wait for a free channel for a given channel loading.

Acronyms

AMPS: Advanced Mobile Phone System
APCO: Association of Public Safety Communication Officials
CAPRAD: Computer Assisted Pre-Coordination Resource and Database System
CapWIN: Capital Area Wireless Integrated Network
CIC: Commonwealth Interoperability Coordinator
CICO: Commonwealth Interoperability Coordination Office
CPWG: Commonwealth Preparedness Working Group
DOJ: Department of Justice
DHS: Department of Homeland Security
HF: High Frequency
ICR: Incident Command Response
ICRI: Incident Commander's Radio Interface
kHz: Kilohertz (1 thousand cycles per second)
MHz: Megahertz (1 million cycles per second)
NIJ: National Institute of Justice
NIMS: National Incident Management System
NPSPAC: National Public Safety National Advisory Committee
OCP: Office of Commonwealth Preparedness
PLMR: Private Land Mobile Radio
SCP: Secure Commonwealth Panel
SIEC: State Interoperability Executive Committee
SIRS: Statewide Interdepartmental Radio System
SPS: Office of the Secretary of Public Safety
STARS: Statewide Agencies Radio System
SWAN: State Wide Alert Network
UHF: Ultra High Frequency
VHF: Very High Frequency
VACP: Virginia Association of Chiefs of Police
VAGEMSA: Virginia Association of Governmental EMS Administrators
VBMP: Virginia Base Mapping Program
VDEM: Virginia Department of Emergency Management
VDFP: Virginia Department of Fire Programs **VDH:** Virginia Department of Health
VDOT: Virginia Department of Transportation
VFCA: Virginia Fire Chiefs Association
VGIN: Virginia Geographic Information Network
VITA: Virginia Information Technology Agency
VPFF: Virginia Professional Fire Fighters
VSA: Virginia Sheriffs' Association
VSP: Virginia Department of State Police

Appendix D: Existing State Tactical Interoperability Solutions

State Tactical Interoperability Solutions

In light of the communication system failures during and following the events of 911 these tactical solutions could save countless lives and property by being deployed to assist the public safety community.

The Commonwealth has worked to develop tactical solutions that can be deployed to a situation with a few hours of an event to provide tactical communications interoperability. These communication assets will assist the Commonwealth in establishing communications in the aftermath of large-scale events.

Some of the more significant tactical interoperability resources the Commonwealth currently has to offer include:

Virginia State Police (VSP)

- Three command posts in Northern, Central, and Western Virginia that can be en route to an incident within two hours to create tactical interoperability.

- Ten radios at each of the seven division locations that can be deployed to a situation and handed out at the scene—primarily to the incident management team—to establish some tactical interoperability for radio communications.

- Eight Incident Commander's Radio Interface (ICRI) units that can allow up to five public safety agencies to achieve radio interoperability. The ICRI units can also be linked together to increase this number to ten radios. These units can operate on battery power (24 hours on eight "AA" batteries) or on electricity if available. VSP also plans to deploy a radio technician with these units to assist with the deployment of these units.

Virginia Department of Emergency Management (VDEM)

- Two mobile command posts located in the Richmond region that contain VHF High band, VHF low band, UHF, VSP radio, VHF Marine, VHF Aircraft, civil Air Patrol, cell phone, and SATCOM communication capabilities. These command posts can be deployed within two hours of an incident, plus drive time and contain or will contain ACU-1000 units that will allow up to 24 connections to various radios and telephones.

- Two portable 60-foot towers and one portable 75-foot tower located in the Richmond region that can be deployed to an incident; each of these towers has trailers and generators, and they can strengthen a repeater's signal to increase the communication footprint at an incident.

- Two brief case satellite phones that can be requested and deployed to a scene.

Virginia Army National Guard

- Unified Command Suite (UCS) stationed with the 34th Civil Support Team in Blackstone, Virginia. The UCS provides tactical interoperable communications (voice, data, and video) between first responders, local, regional, state, and federal agencies using 800 MHz, VHF, HF, UHF, SATCOM, and commercial Ku Band Satellite. There are plans to install a JPS ACU-1000 unit that will allow the UCS to connect with up to 12 radios or telephones. The UCS can be deployed by the Governor and be en route within three hours to support civil authorities reacting to events involving Weapons of Mass Destruction.

Virginia Information Technologies Agency (VITA)

- A portable UHF 20-watt repeater and 30-35 UHF portables that can provide communications coverage within a 2-5 mile radius. Additional programmable UHF radios can be used to increase the 30-35 UHF portables that are deployed with the system. These resources are located in the Richmond region.

If localities or regions need to request these resources during or after an event they should contact the Virginia Emergency Operations Center at (804) 674-2408 or (800) 468-8892.

Appendix E: Seven Regions
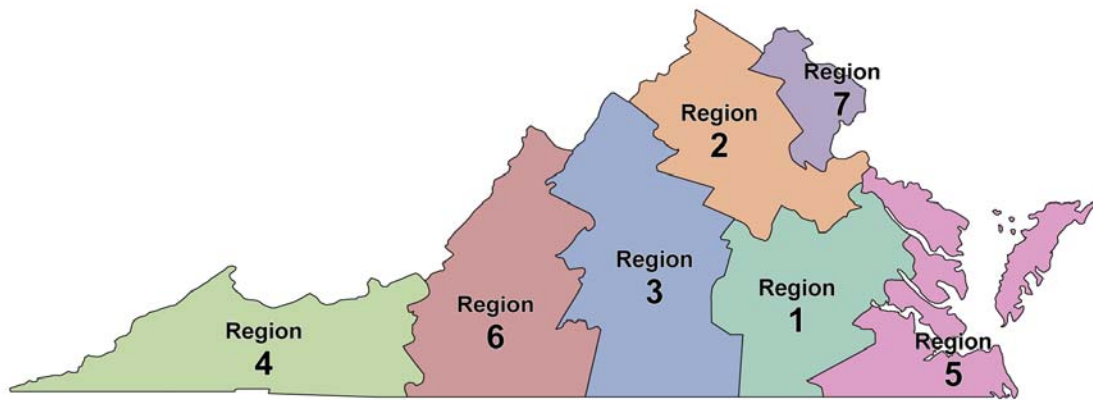
Region 1: RICHMOND
- Amelia County
- Brunswick County
- Charles City County
- Chesterfield County
- City of Colonial Heights
- Dinwiddie County
- City of Emporia
- Essex County
- Goochland County
- Greensville County
- Hanover County
- Henrico County
- City of Hopewell
- King & Queen County
- King William County
- New Kent County
- Nottoway County
- City of Petersburg
- Powhatan County
- Prince George County
- City of Richmond
- Sussex County

Region 2: CULPEPER
- Caroline County
- Clarke County
- Culpeper County
- Fauquier County
- Frederick County
- City of Fredericksburg
- Greene County
- Kings George County
- Louisa County
- Town of Luray
- Madison County
- Orange County
- Page County
- Rappahannock County
- Shenandoah County
- Spotsylvania County
- Warren County
- City of Winchester

Region 3: CENTRAL VIRGINIA
- Albemarle County
- Amherst County
- Appomattox County
- Augusta County
- Buckingham County
- Campbell County
- Charlotte County
- Cumberland County
- Town of Farmville
- Fluvanna County
- Halifax County
- City of Harrisonburg
- Lunenburg County
- City of Lynchburg
- Nelson County
- Prince Edward County
- Rockingham County
- Town of South Boston
- City of Staunton
- City of Waynesboro

Region 4: SOUTHWEST
- Bland County
- City of Bristol
- Buchanan County
- Carroll County
- Dickenson County
- City of Galax

- Giles County
- Grayson County
- Lee County
- City of Norton
- Pulaski County

- City of Radford
- Russell County
- Scott County
- Smyth County
- Tazewell County

- Washington County
- Wise County
- Wythe County

Region 5: TIDEWATER
- Accomack County
- City of Chesapeake
- Town of Chincoteague
- City of Franklin
- Gloucester County
- City of Hampton
- Isle of Wight County
- James City County
- Lancaster County
- Mathews County

- Middlesex County
- City of Newport News
- City of Norfolk
- Northampton County
- Northumberland County
- City of Poquoson
- City of Portsmouth
- Richmond County

- Southampton County
- City of Suffolk
- Surry County
- City of Virginia Beach
- Westmoreland County
- City of Williamsburg
- York County

Region 6: ROANOKE
- Alleghany County
- City of Bedford
- Bedford County
- Botetourt County
- City of Buena Vista
- Town of Christiansburg
- Town of Clifton Forge

- City of Covington
- Craig County
- City of Danville
- Floyd County
- Franklin County
- Henry County
- Highland County
- City of Lexington
- City of Martinsville

- Montgomery County
- Patrick County
- Pittsylvania County
- City of Roanoke
- Rockbridge County
- City of Salem
- Town of Vinton

Region 7: NORTHERN VIRGINIA
- City of Alexandria
- Arlington County
- City of Fairfax
- Fairfax County
- City of Falls Church

- Loudoun County
- City of Manassas
- City of Manassas Park

- Prince William County
- Stafford County

Appendix F: Virginia Code Section 9.1-1100

CHAPTER 221

An Act to amend the Code of Virginia by adding in Title 9.1 a chapter numbered 11, consisting of a section numbered 9.1-1100, relating to statewide communications interoperability.

[S 963]
Approved March 20, 2005

Be it enacted by the General Assembly of Virginia:

1. That the Code of Virginia is amended by adding in Title 9.1 a chapter numbered 11, consisting of a section numbered 9.1-1100, as follows:

CHAPTER 11.
STATEWIDE COMMUNICATIONS INTEROPERABILITY.

§ 9.1-1100. Review of strategic plan; state and local compliance.

The office of the Governor shall ensure that the annual review and update of the statewide interoperability strategic plan is accomplished and implemented to achieve effective and efficient communication between state, local, and federal communication systems.

All state agencies and localities shall achieve consistency with and support the goals of the statewide interoperability strategic plan by July 1, 2015, in order to remain eligible to receive state or federal funds for communications programs and systems.

What is Project 25?
Efforts to develop industry-wide standards have been underway since the late 1980's. Project 25 (P25) is an industry-wide effort to develop a voluntary standard for uniform digital two-way radio for public safety organizations.[7] P25 Standards are a benchmark in Public Safety Radio Communications for First Responders. P25 as defined in the published ANSI/TIA102 documents enabling migration from today's radio systems to desired levels of interoperability directly impacting first responders. It is the first standard of its kind, driven by users, to allow graceful, scalable migration to standards based interoperable systems.

Why is P25 relevant now?
The events in the United States and around the world since September 11, 2001 have spurred increased popular interest in Public Safety communications interoperability. Growing concern has driven many country's governments - including the US Federal Government - to reorganize to create focused positions to address Homeland Security. Long before these events, Public Safety and the land-mobile radio industry created an interoperability solution. Published by TIA and approved by Federal, State/Province and Local Public Safety users, the Project 25 (P25) standards enable a feature-rich, scalable digital radio technology. The availability of radio equipment compliant to P25 standards is now providing a basis for conventional radio communications interoperability that is necessary for First Responders.

Is P25 an accepted standard now?
The P25 standard has been adopted by the National Telecommunications and Information Administration (NTIA), which manages spectrum for the federal government. In addition, NTIA also specified use of P25 narrow band by the year 2005 for the VHF Hi bands (162-174 MHz), and by 2008 for all other bands. Many US government agencies (e.g. Treasury, Interior, Departments of Defense (DoD) and Justice) have specified P25 for procurements of new radio communications systems and equipment. Currently, Virginia has not officially adopted the P25 standard but the SIEC is following these standards closely.

P25 compatibility has become a significant purchasing factor for users of state and local public safety and public service radio communication systems. As state and local Public Safety users change or upgrade their existing analog systems to comply with new FCC regulated bandwidths, demand for P25 compliant digital Public Safety systems increases. This is partly due to the ability of P25 systems to be configured for compatibility with older analog mobile and

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[7] Project 25 – An APCO International project to develop interoperable communications standards for public safety digital mobile radio systems; AFC (Automated Frequency Coordination) – APCO International. Accessed at http://www.apcointl.org/frequency/project25.

portable radios, allowing adopters of the P25 standard to purchase new system equipment without replacing all of their subscriber radios.